# FUNGAL HOST RECORDS FOR SPECIES OF *TRITOMA* (COLEOPTERA: EROTYLIDAE) OF AMERICA NORTH OF MEXICO[1]

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ABSTRACT: A summary of the host fungi for the 11 species of North American *Tritoma* is provided. Most species have clear host preferences, with varying degrees of specificity. Life histories are discussed, including a comparison of larval and adult host relationships.

In 1991, we published a comprehensive list of the host preferences of the Erotylidae of America, north of Mexico (Skelley, Goodrich & Leschen 1991). During the past three years, as a result of recent fieldwork in preparation of Part III of our "Illinois Erotylidae", a large amount of additional host data has been collected for the genus *Tritoma*, including additional larval rearings. These data, together with that reported earlier, are presented here. This list reflects the current classification of host fungi.

Members of the genus *Tritoma* Fabricius feed on a variety of macro-Basidiomycetes. Adults are often found in numbers on fresh basidiocarps and sometimes several species of adults are found on one basidiocarp. The duration of the three larval instars is brief in all species which have been reared. Pupation occurs in the ground adjacent to the host. All species reared transformed to adults without an extended quiescent period in either larval or pupal stages. The adult stage appears to be the longest lived.

As noted in our earlier study (Skelley *et al.*, 1991), museum specimens have been of limited value in this research. Thus the majority of the records presented here are based on our recent fieldwork and rearing studies.

## RESULTS

Data from 3,634 specimens are included in this paper; 1,808 of these are from collections made by the authors since 1991. In the following list of host fungi for the genus *Tritoma* north of Mexico, beetles are listed in phylogenetic order according to Boyle (1956) and by their currently accepted names. See Boyle (1956) and Goodrich & Skelley (1991) for lists of *Tritoma* synonyms.

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Host records are reported under each beetle species in the following format:

**Beetle name**

A,B Fungus name

Fungus synonymy

Names of host fungi are recorded in the currently accepted combination; synonyms are indented under the currently accepted name. When host records were found in the literature, they are cited in brackets [ ]. Numbers in the code to the left (A,B) represent the number of beetles seen from that host: A = number of collections; B = number of adult beetles and/or larvae taken (ie: a citation of "3,15" means that beetle has been taken on that host 3 times with a total of 15 specimens collected). An asterisk, *, before a host name indicates that larvae have been collected from that host and/or that the beetle has been reared from the fungus. Larval records are included only where the larvae have been positively identified.

Specimens studied are deposited in the Spooner-Riegel Insect Collection at Eastern Illinois University or in those of the individuals and institutions listed in the acknowledgments.

## DISCUSSION

Our new data substantially increases the number of known hosts for both adults and larvae of *Tritoma* spp., although in many species host preferences are similar to our earlier data (Skelley, *et al.* 1991).

Our earlier conclusions (Skelley, *et al.* 1991) regarding host preferences in species group *sanguinipennis* and species group *humeralis* are confirmed, although some niche overlap is found in both adults and larvae between *T. mimetica* and *T. sanguinipennis*.

Larval hosts continue to be more restricted than adult hosts. This may be due to fewer collections of larvae, because of their relatively short period of development, but we believe it is more likely due to a higher degree of adult ovipositional specificity. On numerous occasions, we have observed adults of several species on a single sporocarp. Yet, when larvae are present in these situations, almost without exception, they prove to be of a single species. This suggests that competitive exclusion is much more a factor among the larvae than the adults.

Some species show unexpected hosts or host overlap in a few records. For example: rearings of *T. biguttata affinis* from a member of the Boletaceae, or rearing of *T. mimetica* from *Boletus* sp. These apparent inconsistencies may be due to the beetles' utilization of an acceptable host in the absence of a preferred one.

## LIST OF SPECIES

***Tritoma*** Fabricius 1775

Species group ***humeralis***

***Tritoma biguttata affinis*** Lacordaire 1842

1,18 *Amanita bisporigera*
1,4 *Amanita ceasarea*
2,60 * *Amanita excelsa*
9,89 * *Amanita rubescens*
1,3 *Amanita subsolitaria*
1,1 *Amanita vaginata*
1,1 *Amanita verna*
2,7 *Amanita virosa*
12,73 * *Amanita* sp.
2,3 *Armillaria tabescens*
1,6 * Boletaceae
1,5 *Lepiota* or *Amanita* sp.
1,11 *Luecoagaricus naucinus*
1,3 *Phylloporus rhodoxanthus*
2,3 *Russula* sp.

***Tritoma biguttata biguttata*** (Say 1825)

1,1 *Agaricus* sp.
1,1 *Amanita bisporigera*
1,7 *Amanita citrina*
1,1 *Amanita flavorubescens*
*Amanita muscaria* [Weiss & West 1921]
*Amanita phalloides* [Moennich 1944:1,4]
7,453 * *Amanita rubescens* [Weiss & West 1921]
*Amanita solitaria* [Moennich 1939:1,1]
*Amanita strobiliformis* [Chantal 1979; Boyle 1956]
1,20 *Amanita vaginata*
3,37 *Amanita* sp.
1,11 *Armillaria mellea* [Chantal 1979; Boyle 1956]
1,1 *Armillaria tabescens*
*Armillaria* sp. [Weiss & West 1920]
*Collybia* sp. [Weiss & West 1922]
*Lactarius piperatus* [Moennich 1939:1,1]
*Oligoporus tephroleucus*
*Polyporus lacteus* [Weiss & West 1921]
*Russula* sp. [Weiss & West 1922]

***Tritoma aulica*** (Horn 1871)

No host data available

***Tritoma humeralis*** Fabricius 1801

1,7 *Amanita bisporigera*
2,16 *Amanita vaginata*
*Amanitopsis vaginata*
6,34 *Armillaria mellea*
5,43 * *Armillaria tabescens*
*Clitocybe maxima* [Weiss & West 1920]
1,1 *Collybia dryophila*
1,1 *Collybia* sp.
1,12 *Mycena galericulata*
1,1 *Polyporus alveolaris*
*Favolus alveolaris*
8,53 * *Polyporus arcularius*
2,10 *Polyporus radicatus* [Chantal 1979; Boyle 1956]
2,114 * *Polyporus squamosus*
1,2 *Polyporus* sp.
1,1 *Shizopora paradoxa*
1,1 *Xeromphalina* sp.

***Tritoma atriventris*** LeConte 1847

1,3 *Amanita* sp.
2,3 *Armillaria mellea*
13,133 * *Armillaria tabescens*
*Carduus* sp. [Boyle 1956]
1,45 *Clitocybe clavipes*
1,8 * *Lentinus dentosus*
2,2 *Meripilus giganteus*
1,216 * *Omphalotus olearius*,
2,3 *Oudemensiella radicata*
1,1 *Pluteus cervinus* ?
1,12 * *Pluteus* sp.
2,5 *Polyporus alveolaris*
6,35 * *Polyporus arcularius*

***Tritoma erythrocephala*** Lacordaire 1842

1,11 *Amanita vaginata*
*Amanitopsis vaginata*
2,26 * *Armillaria tabescens*
1,22 * *Lentinus dentosus*
1,1 *Marasmius* sp.
2,12 * *Omphalotus olearius*

***Tritoma angulata*** Say 1826
1,1 *Armillaria tabescens*
1,1 *Lactarius arguillaceifolius*
1,2 *Lactarius insulus*
21,116 * *Lactarius piperatus* [Moennich 1939:1,3]
2,15 * *Lactarius subvellereus*
1,1 *Lactarius thejogalus*
1,1 *Lactarius volemus* [Moennich 1939:1,5]
2,69 * *Lactarius* sp.
4,14 *Russula aeruginea*
1,2 *Russula albidula*
1,3 *Russula compacta*
2,3 *Russula crustosus*
1,4 *Russula* (*emetica*?)
1,2 *Russula* (*foetens*?)
2,6 *Russula mariae*
1,2 *Russula paludosa*
1,9 *Russula subalbida*
1,3 *Russula xerampelina*
22,670 * *Russula* sp.

***Tritoma unicolor*** Say 1826
*Calvatia craniformis* [Boyle 1956]
1,5 *Hypholoma* sp. [Boyle 1956]
2,2 *Omphalotus illudens*
*Clitocybe illudens* [Boyle 1956]
5,142 * *Omphalotus olearius*
1,2 Tricholomataceae

***Tritoma tenebrosa*** Fall 1912
No host data available.

***Tritoma mimetica*** (Crotch 1873)
1,2 *Amanita fulva*
1,1 *Amanita vaginata*
3,5 *Armillaria mellea*
1,37 * *Boletus* sp.
1,1 *Marasmius* sp.
1,1 * *Pluteus cervinus*
1,16 * *Polyporus alveolaris*
7,206 * *Polyporus radicatus*
4,36 * *Polyporus squamosus*
1,1 *Polyporus* sp.
1,1 *Tricholomopsis platyphylla*
1,1 *Xerula furfuracea*
*Oudemensiella furfuracea* [Skelley, *et al* 1991]
14,83 *Xerula radicata*
*Oudemensiella radicata* [Skelley, *et al* 1991]
*Collybia radicata* [Froeschner & Meiners 1953]
9,29 *Xerula rugosoceps*

Species group ***sanguinipennis***

***Tritoma sanguinipennis*** (Say 1825)
*Amanita phalloides* [Moennich 1944:1,1]
19,162 *Polyporus alveolaris*
*Favolus alveolaris*
*Favolus canadensis* [Boyle 1956]
*Hexagenia alveraris* [Boyle 1956]
31,193 * *Polyporus arcularius*
3,14 *Polyporus badius*
1,4 *Polyporus radicatus*
2,5 *Polyporus squamosus*
3,49 * *Polyporus* sp.

***Tritoma pulchra*** Say 1826
1,28 *Ceriporia* sp.
1,1 *Ganoderma applanatum*
*Oligoporus floriformis*
*Polyporus floriformis* [Chantal 1979]
1,2 *Oligoporus stipticus*
*Polyporus immitis*
3,17 *Oligoporus tephroleucus*
*Polyporus tephroleucus* {Judd 1957:1,1]
1,2 *Oligoporus* sp.
*Piptoporus betulinus*
*Polyporus betulinus* [Chantal 1979; Boyle 1956]
1,1 *Polyporus squamosus*
*Melanopus squamosus*
*Russula irrescens* (*R. virescens*?) [Weiss 1924]
1,1 *Stemonitis axifers* {Myxomycete}
2,5 *Tyromyces chioneus*
*Polyporus albellus*
*Polyporus chioneus* {Weiss 1920; Weiss & West 1920]

New host data supports our taxonomic conclusions regarding synonymy in the *Tritoma biguttata* complex (Goodrich & Skelley 1991). New data also suggest that further synonymy in this genus may be justified. *Tritoma humeralis*, *T. atriventris,* and *T. aulica*, whose relationships parallel those of the three forms of *T. biguttata*, show no significant difference in host records. This conclusion also applies to *T. erythrocephala*, specimens of which have been regularly collected and reared with *T. atriventris*.

A huge amount of new host data supports our earlier conclusion that fungi of the genera *Russula* and *Lactarius* are the adult and larval hosts of *Tritoma angulata,* whose hosts were virtually unknown prior to our 1991 publication.

*Tritoma mimetica* demonstrates some interesting host relationships. Adults are usually collected in association with *Xerula* spp. (a gill fungus), while larvae have almost exclusively been reared from *Polyporus* spp. (polypores). Changes in the classification of fungi have also complicated the picture. *Xerula radicata* and *X. furfuracea* were, until quite recently, placed in the genus *Oudemensiella*. In addition, *X. radicata* is now known to represent a group of closely related species, some or all of which may be suitable hosts for *Tritoma mimetica*.

It should be noted that host data collected in this research has a significant bias toward midwestern host relationships. When extensive collections are made in other localities, additions and/or apparent shifts in preference may be discovered. For this reason, we would be pleased to examine and identify any Erotylidae collected in association with an identified fungal host.

For further discussion of host relationships in the genus *Tritoma*, see Goodrich & Skelley (1995).

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